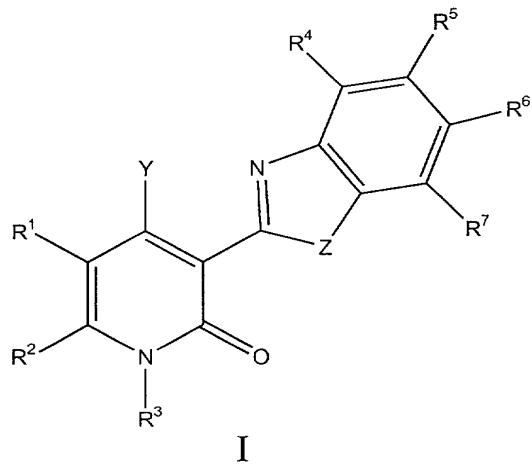


CLAIMS

What is claimed is:

- 1 1. A compound having the structure I, a tautomer of the
- 2 compound, a pharmaceutically acceptable salt of the compound, or a
- 3 pharmaceutically acceptable salt of the tautomer



- 4
- 5 wherein,

6 Y is selected from the group consisting of -OH, -OR⁸ groups, -SH,
7 -SR⁹ groups, -NR¹⁰R¹¹ groups, -CN, -C(=O)-R¹² groups, substituted
8 and unsubstituted alkyl groups, substituted and unsubstituted alkenyl
9 groups, substituted and unsubstituted alkynyl groups, substituted and
10 unsubstituted aralkyl groups, substituted and unsubstituted
11 heterocyclalkyl groups, substituted and unsubstituted
12 alkylaminoalkyl groups, substituted and unsubstituted
13 dialkylaminoalkyl groups, substituted and unsubstituted
14 arylaminoalkyl groups, substituted and unsubstituted
15 diarylaminoalkyl groups, substituted and unsubstituted
16 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted

17 heterocycllaminoalkyl groups, substituted and unsubstituted
18 diheterocycllaminoalkyl groups, substituted and unsubstituted
19 (alkyl)(heterocycl)aminoalkyl groups, substituted and unsubstituted
20 (aryl)(heterocycl)aminoalkyl groups, substituted and unsubstituted
21 heterocycl groups, substituted and unsubstituted aryl groups,
22 substituted and unsubstituted hydroxyalkyl groups, substituted and
23 unsubstituted alkoxyalkyl groups, substituted and unsubstituted
24 aryloxyalkyl groups, and substituted and unsubstituted
25 heterocycloxyalkyl groups;

26 Z is selected from the group consisting of O, S, and NR¹³ groups;

27 R¹ and R² join to form a 5 to 7 membered substituted or unsubstituted
28 ring comprising at least one O, N, or S atom;

29 R³ and R¹³ may be the same or different and are selected from the
30 group consisting of H, -OH, substituted and unsubstituted alkoxy
31 groups, substituted and unsubstituted aryloxy groups, -NH₂,
32 substituted and unsubstituted alkylamino groups, substituted and
33 unsubstituted arylamino groups, substituted and unsubstituted
34 dialkylamino groups, substituted and unsubstituted diarylamino
35 groups, substituted and unsubstituted (alkyl)(aryl)amino groups,
36 substituted and unsubstituted heterocyclamino groups, substituted
37 and unsubstituted diheterocyclamino groups, substituted and
38 unsubstituted (alkyl)(heterocycl)amino groups, substituted and
39 unsubstituted (aryl)(heterocycl)amino groups, substituted and
40 unsubstituted heterocycloxy groups, substituted and unsubstituted
41 alkyl groups, substituted and unsubstituted aryl groups, -C(=O)H,
42 -C(=O)-alkyl groups, and -C(=O)-aryl groups;

43 R⁴, R⁵, R⁶, and R⁷ may be the same or different and are
44 independently selected from the group consisting of H, Cl, Br, F, I,
45 -NO₂, -CN, -OH, -OR¹⁴ groups, -NR¹⁵R¹⁶ groups, -C(=O)R¹⁷
46 groups, -SH, -SR¹⁸ groups, -S(=O)R¹⁹ groups, S(=O)₂R²⁰ groups,
47 substituted and unsubstituted amidinyl groups, substituted and
48 unsubstituted guanidinyl groups, substituted and unsubstituted
49 primary, secondary, and tertiary alkyl groups, substituted and
50 unsubstituted aryl groups, substituted and unsubstituted alkenyl
51 groups, substituted and unsubstituted alkynyl groups, substituted and
52 unsubstituted heterocycl groups, substituted and unsubstituted
53 alkylaminoalkyl groups, substituted and unsubstituted
54 dialkylaminoalkyl groups, substituted and unsubstituted
55 arylaminoalkyl groups, substituted and unsubstituted
56 diarylaminoalkyl groups, substituted and unsubstituted
57 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted
58 heterocyclalkyl groups, substituted and unsubstituted aminoalkyl
59 groups, substituted and unsubstituted heterocyclaminoalkyl groups,
60 substituted and unsubstituted diheterocyclaminoalkyl groups,
61 substituted and unsubstituted (alkyl)(heterocycl)aminoalkyl groups,
62 substituted and unsubstituted (aryl)(heterocycl)aminoalkyl groups,
63 substituted and unsubstituted hydroxyalkyl groups, substituted and
64 unsubstituted alkoxyalkyl groups, substituted and unsubstituted
65 aryloxyalkyl groups, and substituted and unsubstituted
66 heterocyclyoxyalkyl groups;

67 R⁸ is selected from the group consisting of substituted and
68 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
69 substituted and unsubstituted heterocycl groups, substituted and
70 unsubstituted heterocyclalkyl groups, -C(=O)H, -C(=O)-alkyl
71 groups, -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl

72 groups, -C(=O)NH₂, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl)
73 groups, -C(=O)N(alkyl)₂ groups, -C(=O)N(aryl)₂ groups,
74 -C(=O)N(alkyl)(aryl) groups, -NH₂, -NH(alkyl) groups, -NH(aryl)
75 groups, -N(alkyl)₂ groups, -N(alkyl)(aryl) groups, -N(aryl)₂ groups,
76 -C(=O)NH(heterocyclyl) groups, -C(=O)N(heterocyclyl)₂ groups,
77 -C(=O)N(alkyl)(heterocyclyl) groups, and
78 -C(=O)N(aryl)(heterocyclyl) groups;

79 R⁹ and R¹⁸ may be the same or different and are independently
80 selected from the group consisting of substituted and unsubstituted
81 alkyl groups, and substituted and unsubstituted aryl groups;

82 R¹⁰ is selected from the group consisting of H, substituted and
83 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
84 and substituted and unsubstituted heterocyclyl groups;

85 R¹¹ is selected from the group consisting of H, substituted and
86 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
87 substituted and unsubstituted heterocyclyl groups, -OH, alkoxy
88 groups, aryloxy groups, -NH₂, substituted and unsubstituted
89 heterocyclalkyl groups, substituted and unsubstituted aminoalkyl
90 groups, substituted and unsubstituted alkylaminoalkyl groups,
91 substituted and unsubstituted dialkylaminoalkyl groups, substituted
92 and unsubstituted arylaminoalkyl groups, substituted and
93 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted
94 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted
95 alkylamino groups, substituted and unsubstituted arylamino groups,
96 substituted and unsubstituted dialkylamino groups, substituted and
97 unsubstituted diarylamino groups, substituted and unsubstituted
98 (alkyl)(aryl)amino groups, -C(=O)H, -C(=O)-alkyl groups,

99 -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl groups,
100 -C(=O)NH₂, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,
101 -C(=O)N(alkyl)₂ groups, -C(=O)N(aryl)₂ groups,
102 -C(=O)N(alkyl)(aryl) groups, -C(=O)-heterocyclyl groups,
103 -C(=O)-O-heterocyclyl groups, -C(=O)NH(heterocyclyl) groups,
104 -C(=O)-N(heterocyclyl)₂ groups, -C(=O)-N(alkyl)(heterocyclyl)
105 groups, -C(=O)-N(aryl)(heterocyclyl) groups, substituted and
106 unsubstituted heterocyclylaminoalkyl groups, substituted and
107 unsubstituted diheterocyclylaminoalkyl groups, substituted and
108 unsubstituted (alkyl)(heterocyclyl)aminoalkyl groups, substituted and
109 unsubstituted (aryl)(heterocyclyl)aminoalkyl groups, substituted and
110 unsubstituted hydroxyalkyl groups, substituted and unsubstituted
111 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl
112 groups, and substituted and unsubstituted heterocyclyloxyalkyl
113 groups;

114 R¹² is selected from the group consisting of H, -OH, alkoxy groups,
115 aryloxy groups, -NH₂, -NH(alkyl) groups, -NH(aryl) groups,
116 -N(alkyl)₂ groups, -N(aryl)₂ groups, -N(alkyl)(aryl) groups,
117 substituted and unsubstituted alkyl groups, substituted and
118 unsubstituted aryl groups, -NH(heterocyclyl) groups,
119 -N(heterocyclyl)₂ groups, -N(alkyl)(heterocyclyl) groups, and
120 -N(aryl)(heterocyclyl) groups;

121 R¹⁴ is selected from the group consisting of substituted and
122 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
123 substituted and unsubstituted heterocyclyl groups, substituted and
124 unsubstituted heterocyclylalkyl groups, -C(=O)H, -C(=O)-alkyl
125 groups, -C(=O)-aryl groups, -C(=O)-heterocyclyl groups,
126 -C(=O)NH₂, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,

127 -C(=O)N(alkyl)₂ groups, -C(=O)N(aryl)₂ groups,
128 -C(=O)N(alkyl)(aryl) groups, -C(=O)NH-heterocyclyl groups,
129 -C(=O)N-(heterocyclyl)₂ groups, -C(=O)N(alkyl)(heterocyclyl)
130 groups, -C(=O)N(aryl)(heterocyclyl) groups, substituted and
131 unsubstituted aminoalkyl groups, substituted and unsubstituted
132 alkylaminoalkyl groups, substituted and unsubstituted
133 dialkylaminoalkyl groups, substituted and unsubstituted
134 arylaminoalkyl groups, substituted and unsubstituted
135 diarylaminoalkyl groups, substituted and unsubstituted
136 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted
137 heterocyclylaminoalkyl groups, substituted and unsubstituted
138 diheterocyclylaminoalkyl groups, substituted and unsubstituted
139 (heterocyclyl)(alkyl)aminoalkyl groups, substituted and unsubstituted
140 (heterocyclyl)(aryl)aminoalkyl groups, substituted and unsubstituted
141 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl
142 groups, substituted and unsubstituted hydroxyalkyl groups, and
143 substituted and unsubstituted heterocyclyloxyalkyl groups;

144 R¹⁵ is selected from the group consisting of H, substituted and
145 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
146 and substituted and unsubstituted heterocyclyl groups;

147 R¹⁶ is selected from the group consisting of H, substituted and
148 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
149 substituted and unsubstituted heterocyclyl groups, -C(=O)H,
150 -C(=O)-alkyl groups, -C(=O)-aryl groups, -C(=O)NH₂,
151 -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,
152 -C(=O)N(alkyl)₂ groups, -C(=O)N(aryl)₂ groups,
153 -C(=O)N(alkyl)(aryl) groups, -C(=O)O-alkyl groups,
154 -C(=O)O-aryl groups, substituted and unsubstituted aminoalkyl

155 groups, substituted and unsubstituted alkylaminoalkyl groups,
156 substituted and unsubstituted dialkylaminoalkyl groups, substituted
157 and unsubstituted arylaminoalkyl groups, substituted and
158 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted
159 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted
160 heterocyclalkyl groups, -C(=O)-heterocycl groups,
161 -C(=O)-O-heterocycl groups, -C(=O)NH(heterocycl) groups,
162 -C(=O)-N(heterocycl)₂ groups, -C(=O)-N(alkyl)(heterocycl)
163 groups, -C(=O)-N(aryl)(heterocycl) groups, substituted and
164 unsubstituted heterocyclaminoalkyl groups, substituted and
165 unsubstituted diheterocyclaminoalkyl groups, substituted and
166 unsubstituted (heterocycl)(alkyl)aminoalkyl groups, substituted and
167 unsubstituted (heterocycl)(aryl)aminoalkyl groups, substituted and
168 unsubstituted hydroxyalkyl groups, substituted and unsubstituted
169 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl
170 groups, and substituted and unsubstituted heterocyclyoxyalkyl
171 groups; and

172 R¹⁷, R¹⁹, and R²⁰ may be the same or different and are independently
173 selected from the group consisting of H, -NH₂, -NH(alkyl) groups,
174 -NH(aryl) groups, -N(alkyl)₂ groups, -N(aryl)₂ groups,
175 -N(alkyl)(aryl) groups, -NH(heterocycl) groups,
176 -N(heterocycl)(alkyl) groups, -N(heterocycl)(aryl) groups,
177 -N(heterocycl)₂ groups, substituted and unsubstituted alkyl groups,
178 substituted and unsubstituted aryl groups, -OH, substituted and
179 unsubstituted alkoxy groups, substituted and unsubstituted
180 heterocycl groups, substituted and unsubstituted aryloxy groups,
181 heterocyclyoxy groups, -NHOH, -N(alkyl)OH groups, -N(aryl)OH
182 groups, -N(alkyl)O-alkyl groups, -N(aryl)O-alkyl groups,
183 -N(alkyl)O-aryl groups, and -N(aryl)O-aryl groups.

1 2. The compound according to claim 1, wherein Y is selected
2 from the group consisting of -OH, -OR⁸ groups, and -NR¹⁰R¹¹ groups.

1 3. The compound according to claim 1, wherein Y is a -NR¹⁰R¹¹
2 group.

1 4. The compound according to claim 1, wherein Z is an NR¹³
2 group.

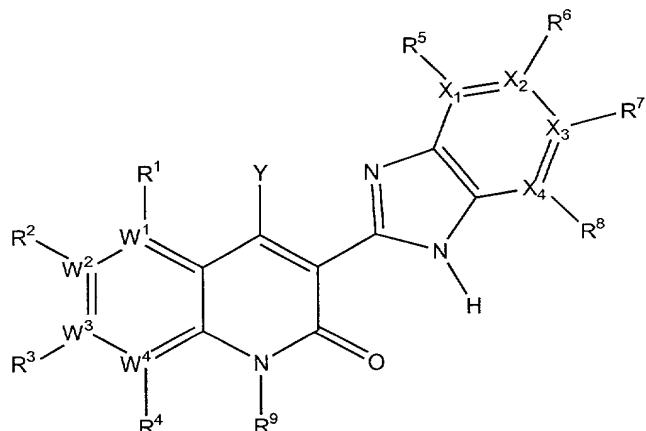
1 5. The compound according to claim 1, wherein R⁴ and R⁷ are
2 hydrogen and R⁵ and R⁶ are selected from the group consisting of hydrogen and
3 alkyl groups having from 1 to 4 carbon atoms.

1 6. The compound according to claim 1, wherein R⁵ or R⁶ is an
2 -OR¹⁴ group and R¹⁴ is an alkyl, aryl, heterocycll, or heterocyclalkyl group.

1 7. The compound according to claim 1, wherein R⁵ or R⁶ is a
2 -OCH₂(CH₂)_q(heterocycl) group and q is 0, 1, 2, 3, or 4.

1 8. The compound according to claim 1, wherein R¹⁷ is selected
2 from the group consisting of substituted and unsubstituted alkyl groups, substituted
3 and unsubstituted aryl groups, -NH₂, -NH(alkyl) groups, -N(alkyl)₂ groups,
4 -NH(aryl) groups, -N(aryl)₂ groups, -N(alkyl)(aryl) groups, -NH(heterocycl)
5 groups, -N(heterocycl)(alkyl) groups, -N(heterocycl)(aryl) groups,
6 -N(heterocycl)₂ groups, and N-containing heterocycles, wherein the N-containing
7 heterocycles are bonded to the carbonyl carbon of the -C(=O)-R¹⁷ group through
8 either a nitrogen atom or a carbon atom in the rings of the N-containing
9 heterocycles.

1 9. A compound having the structure III, a tautomer of the
2 compound, a pharmaceutically acceptable salt of the compound, or a
3 pharmaceutically acceptable salt of the tautomer



4 III

5 wherein,

6 W¹, W², W³, and W⁴ are selected from C or N, and at least one of
7 W¹, W², W³, or W⁴ is N;

8 X¹, X², X³, and X⁴ are selected from C or N, and at least one of X¹,
9 X², X³, or X⁴ is N;

10 Y is selected from the group consisting of H, -OH, -OR¹⁰ groups,
11 -SH, -SR¹¹ groups, -NR¹²R¹³ groups, -CN, -C(=O)-R¹⁴ groups,
12 substituted and unsubstituted alkyl groups, substituted and
13 unsubstituted alkenyl groups, substituted and unsubstituted alkynyl
14 groups, substituted and unsubstituted aralkyl groups, substituted and
15 unsubstituted heterocyclalkyl groups, substituted and unsubstituted
16 alkylaminoalkyl groups, substituted and unsubstituted
17 dialkylaminoalkyl groups, substituted and unsubstituted
18 arylaminoalkyl groups, substituted and unsubstituted

19 diarylaminoalkyl groups, substituted and unsubstituted
20 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted
21 heterocyclalaminoalkyl groups, substituted and unsubstituted
22 diheterocyclalaminoalkyl groups, substituted and unsubstituted
23 (heterocyclyl)(alkyl)aminoalkyl groups, substituted and unsubstituted
24 (heterocyclyl)(aryl)aminoalkyl groups, substituted and unsubstituted
25 heterocyclyl groups, substituted and unsubstituted aryl groups,
26 substituted and unsubstituted hydroxyalkyl groups, substituted and
27 unsubstituted alkoxyalkyl groups, substituted and unsubstituted
28 aryloxyalkyl groups, and substituted and unsubstituted
29 heterocyclyoxyalkyl groups;

30 R¹, R², R³, R⁴, R⁵, R⁶, R⁷, and R⁸ may be the same or different and
31 are independently selected from the group consisting of H, Cl, Br, F,
32 I, -NO₂, -CN, -OH, -OR¹⁵ groups, -NR¹⁶R¹⁷ groups, -C(=O)R¹⁸
33 groups, -SH, -SR¹⁹ groups, -S(=O)R²⁰ groups, S(=O)₂R²¹ groups,
34 substituted and unsubstituted amidinyl groups, substituted and
35 unsubstituted guanidinyl groups, substituted and unsubstituted
36 primary, secondary, and tertiary alkyl groups, substituted and
37 unsubstituted aryl groups, substituted and unsubstituted alkenyl
38 groups, substituted and unsubstituted alkynyl groups, substituted and
39 unsubstituted heterocyclyl groups, substituted and unsubstituted
40 alkylaminoalkyl groups, substituted and unsubstituted
41 dialkylaminoalkyl groups, substituted and unsubstituted
42 arylaminoalkyl groups, substituted and unsubstituted
43 diarylaminoalkyl groups, substituted and unsubstituted
44 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted
45 heterocyclalkyl groups, substituted and unsubstituted aminoalkyl
46 groups, substituted and unsubstituted heterocyclalaminoalkyl groups,
47 substituted and unsubstituted diheterocyclalaminoalkyl groups,

48 substituted and unsubstituted (alkyl)(heterocyclyl)aminoalkyl groups,
49 substituted and unsubstituted (aryl)(heterocyclyl)aminoalkyl groups,
50 substituted and unsubstituted hydroxyalkyl groups, substituted and
51 unsubstituted alkoxyalkyl groups, substituted and unsubstituted
52 aryloxyalkyl groups, and substituted and unsubstituted
53 heterocyclyloxyalkyl groups, and R¹, R², R³, R⁴, R⁵, R⁶, R⁷, and R⁸
54 may be absent;

55 R¹ is absent or H if W¹ is N;

56 R² is absent or H if W² is N;

57 R³ is absent or H if W³ is N;

58 R⁴ is absent or H if W⁴ is N;

59 R⁵ is absent or H if X¹ is N;

60 R⁶ is absent or H if X² is N;

61 R⁷ is absent or H if X³ is N;

62 R⁸ is absent or H if X⁴ is N;

63 R⁹ is selected from the group consisting of H, -OH, substituted and
64 unsubstituted alkoxy groups, substituted and unsubstituted aryloxy
65 groups, -NH₂, substituted and unsubstituted alkylamino groups,
66 substituted and unsubstituted arylamino groups, substituted and
67 unsubstituted dialkylamino groups, substituted and unsubstituted

68 diarylamino groups, substituted and unsubstituted (alkyl)(aryl)amino
69 groups, substituted and unsubstituted alkyl groups, substituted and
70 unsubstituted aryl groups, -C(=O)H, -C(=O)-alkyl groups, and
71 -C(=O)-aryl groups;

72 R¹⁰ is selected from the group consisting of substituted and
73 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
74 substituted and unsubstituted heterocycll groups, substituted and
75 unsubstituted heterocyclalkyl groups, -C(=O)H, -C(=O)-alkyl
76 groups, -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl
77 groups, -C(=O)NH₂, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl)
78 groups, -C(=O)N(alkyl)₂ groups, -C(=O)N(aryl)₂ groups,
79 -C(=O)N(alkyl)(aryl) groups, -NH₂, -NH(alkyl) groups, -NH(aryl)
80 groups, -N(alkyl)₂ groups, -N(alkyl)(aryl) groups, -N(aryl)₂ groups,
81 -C(=O)NH(heterocycll) groups, -C(=O)N(heterocycll)₂ groups,
82 -C(=O)N(alkyl)(heterocycll) groups, and
83 -C(=O)N(aryl)(heterocycll) groups;

84 R¹¹ and R¹⁹ may be the same or different and are independently
85 selected from the group consisting of substituted and unsubstituted
86 alkyl groups, and substituted and unsubstituted aryl groups;

87 R¹² is selected from the group consisting of H, substituted and
88 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
89 and substituted and unsubstituted heterocycll groups;

90 R¹³ is selected from the group consisting of H, substituted and
91 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
92 substituted and unsubstituted heterocycll groups, -OH, alkoxy
93 groups, aryloxy groups, -NH₂, substituted and unsubstituted

94 heterocyclalkyl groups, substituted and unsubstituted aminoalkyl
95 groups, substituted and unsubstituted alkylaminoalkyl groups,
96 substituted and unsubstituted dialkylaminoalkyl groups, substituted
97 and unsubstituted arylaminoalkyl groups, substituted and
98 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted
99 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted
100 alkylamino groups, substituted and unsubstituted arylamino groups,
101 substituted and unsubstituted dialkylamino groups, substituted and
102 unsubstituted diarylamino groups, substituted and unsubstituted
103 (alkyl)(aryl)amino groups, -C(=O)H, -C(=O)-alkyl groups,
104 -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl groups,
105 -C(=O)NH₂, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,
106 -C(=O)N(alkyl)₂ groups, -C(=O)N(aryl)₂ groups,
107 -C(=O)N(alkyl)(aryl) groups, -C(=O)-heterocyclyl groups,
108 -C(=O)-O-heterocyclyl groups, -C(=O)NH(heterocyclyl) groups,
109 -C(=O)-N(heterocyclyl)₂ groups, -C(=O)-N(alkyl)(heterocyclyl)
110 groups, -C(=O)-N(aryl)(heterocyclyl) groups, substituted and
111 unsubstituted heterocyclaminoalkyl groups, substituted and
112 unsubstituted hydroxyalkyl groups, substituted and unsubstituted
113 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl
114 groups, and substituted and unsubstituted heterocyclyoxyalkyl
115 groups;

116 R¹⁴ is selected from the group consisting of H, -OH, alkoxy groups,
117 aryloxy groups, -NH₂, -NH(alkyl) groups, -NH(aryl) groups,
118 -N(alkyl)₂ groups, -N(aryl)₂ groups, -N(alkyl)(aryl) groups,
119 substituted and unsubstituted alkyl groups, substituted and
120 unsubstituted aryl groups, -NH(heterocyclyl) groups,
121 -N(heterocyclyl)₂ groups, -N(alkyl)(heterocyclyl) groups, and
122 -N(aryl)(heterocyclyl) groups;

123 R¹⁵ is selected from the group consisting of substituted and
124 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
125 substituted and unsubstituted heterocyclyl groups, substituted and
126 unsubstituted heterocyclylalkyl groups, -C(=O)H, -C(=O)-alkyl
127 groups, -C(=O)-aryl groups, -(C=O)-heterocyclyl groups,
128 -C(=O)NH₂, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,
129 -C(=O)N(alkyl)₂ groups, -C(=O)N(aryl)₂ groups,
130 -C(=O)N(alkyl)(aryl) groups, -C(=O)NH-heterocyclyl groups,
131 -C(=O)N-(heterocyclyl)₂ groups, -C(=O)N(alkyl)(heterocyclyl)
132 groups, -C(=O)N(aryl)(heterocyclyl) groups, substituted and
133 unsubstituted aminoalkyl groups, substituted and unsubstituted
134 alkylaminoalkyl groups, substituted and unsubstituted
135 dialkylaminoalkyl groups, substituted and unsubstituted
136 arylaminoalkyl groups, substituted and unsubstituted
137 diarylaminoalkyl groups, substituted and unsubstituted
138 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted
139 heterocyclylaminoalkyl groups, substituted and unsubstituted
140 diheterocyclylaminoalkyl groups, substituted and unsubstituted
141 (heterocyclyl)(alkyl)aminoalkyl groups, substituted and unsubstituted
142 (heterocyclyl)(aryl)aminoalkyl groups, substituted and unsubstituted
143 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl
144 groups, substituted and unsubstituted hydroxyalkyl groups, and
145 substituted and unsubstituted heterocyclyloxyalkyl groups;

146 R¹⁶ is selected from the group consisting of H, substituted and
147 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,
148 and substituted and unsubstituted heterocyclyl groups;

149 R¹⁷ is selected from the group consisting of H, substituted and
150 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,

151 substituted and unsubstituted heterocyclyl groups, -C(=O)H,
152 -C(=O)-alkyl groups, -C(=O)-aryl groups, -C(=O)NH₂,
153 -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,
154 -C(=O)N(alkyl)₂ groups, -C(=O)N(aryl)₂ groups,
155 -C(=O)N(alkyl)(aryl) groups, -C(=O)O-alkyl groups,
156 -C(=O)O-aryl groups, substituted and unsubstituted aminoalkyl
157 groups, substituted and unsubstituted alkylaminoalkyl groups,
158 substituted and unsubstituted dialkylaminoalkyl groups, substituted
159 and unsubstituted arylaminoalkyl groups, substituted and
160 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted
161 (aryl)(alkyl)aminoalkyl groups, substituted and unsubstituted
162 heterocyclylalkyl groups, -C(=O)-heterocyclyl groups,
163 -C(=O)-O-heterocyclyl groups, -C(=O)NH(heterocyclyl) groups,
164 -C(=O)-N(heterocyclyl)₂ groups, -C(=O)-N(alkyl)(heterocyclyl)
165 groups, -C(=O)-N(aryl)(heterocyclyl) groups, substituted and
166 unsubstituted heterocyclylaminoalkyl groups, substituted and
167 unsubstituted diheterocyclylaminoalkyl groups, substituted and
168 unsubstituted (heterocyclyl)(alkyl)aminoalkyl groups, substituted and
169 unsubstituted (heterocyclyl)(aryl)aminoalkyl groups, substituted and
170 unsubstituted hydroxyalkyl groups, substituted and unsubstituted
171 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl
172 groups, and substituted and unsubstituted heterocyclyoxyalkyl
173 groups; and

174 R¹⁸, R²⁰, and R²¹ may be the same or different and are independently
175 selected from the group consisting of H, -NH₂, -NH(alkyl) groups,
176 -NH(aryl) groups, -N(alkyl)₂ groups, -N(aryl)₂ groups,
177 -N(alkyl)(aryl) groups, -NH(heterocyclyl) groups,
178 -N(heterocyclyl)(alkyl) groups, -N(heterocyclyl)(aryl) groups,
179 -N(heterocyclyl)₂ groups, substituted and unsubstituted alkyl groups,

180 substituted and unsubstituted aryl groups, -OH, substituted and
181 unsubstituted alkoxy groups, substituted and unsubstituted
182 heterocycll groups, substituted and unsubstituted aryloxy groups,
183 heterocyclyoxy groups, -NHOH, -N(alkyl)OH groups, -N(aryl)OH
184 groups, -N(alkyl)O-alkyl groups, -N(aryl)O-alkyl groups,
185 -N(alkyl)O-aryl groups, and -N(aryl)O-aryl groups.

1 10. The compound according to claim 9, wherein one of W¹, W²,
2 W³, and W⁴ is N.

1 11. The compound according to claim 9, wherein one of X¹, X²,
2 X³, and X⁴ is N.

1 12. The compound according to claim 9, wherein Y is selected
2 from the group consisting of H, -OH, -OR¹⁰ groups, and -NR¹²R¹³ groups.

1 13. The compound according to claim 9, wherein Y is a -NR¹²R¹³
2 group.

1 14. The compound according to claim 9, wherein R⁵ is H, X⁴ is
2 N, and R⁶ and R⁷ are selected from the group consisting of H and alkyl groups
3 having from one to four carbon atoms.

1 15. The compound according to claim 9, wherein R⁶ or R⁷ is an
2 -OR¹⁵ group and R¹⁵ is an alkyl, aryl, heterocycll, or heterocyclylalkyl group.

1 16. The compound according to claim 9, wherein R⁶ or R⁷ is a
2 -OCH₂(CH₂)_q(heterocycll) group and q is 0, 1, 2, 3, or 4.

1 17. The compound according to claim 9, wherein R¹⁸ is selected
2 from the group consisting of substituted and unsubstituted alkyl groups, substituted
3 and unsubstituted aryl groups, -NH₂, -NH(alkyl) groups, -N(alkyl)₂ groups,

4 -NH(aryl) groups, -N(aryl)₂ groups, -N(alkyl)(aryl) groups, -NH(heterocycll)
5 groups, -N(heterocycll)(alkyl) groups, -N(heterocycll)(aryl) groups,
6 -N(heterocycll)₂ groups, and N-containing heterocycles , wherein the N-containing
7 heterocycles are bonded to the carbonyl carbon of the -C(=O)-R¹⁸ group through
8 either a nitrogen atom or a carbon atom in the rings of the N-containing
9 heterocycles.

1 18. A pharmaceutical formulation, comprising the compound
2 according to claim 1 in combination with a pharmaceutically acceptable carrier.

1 19. A method of treating a patient in need of an inhibitor of
2 vascular endothelial growth factor receptor tyrosine kinase, comprising
3 administering an effective amount of the pharmaceutical formulation according to
4 claim 18 to a patient in need thereof.

1 20. A pharmaceutical formulation, comprising the compound
2 according to claim 9 in combination with a pharmaceutically acceptable carrier.

1 21. A method of treating a patient in need of an inhibitor of
2 vascular endothelial growth factor receptor tyrosine kinase, comprising
3 administering an effective amount of the pharmaceutical formulation according to
4 claim 20 to a patient in need thereof.